



People • Process • Technology



California Public Health Information Network Executive Summary



**June
2003**

Preface

The Department of Health Services, Division of Communicable Disease Control (DCDC) contracted with Synergy Consulting, Inc. to facilitate development of a Strategic Plan to incorporate the Centers for Disease Control and Prevention's (CDC) National Electronic Disease Surveillance System (NEDSS) standards into the State's public health systems. The DCDC, disease surveillance programs, local health departments, and other public health stakeholders collaborated to develop the strategic plan.



During development of this Plan, the CDC expanded the scope of its NEDSS effort to define a "network" of activities that supports public health surveillance. This expanded initiative is currently known as the Public Health Information Network (PHIN). California's initiative is referred to as the California Public Health Information Network (CalPHIN) Strategic Plan. This gives California a "name brand" that aligns with CDC efforts, incorporates the technical advantages of NEDSS, and includes the expanded value of a common business perspective for disease surveillance.

The CalPHIN Strategic Plan focuses on the people involved in collecting and using the relevant public health information, the business processes that support disease surveillance in the State, and the technology to enable efficient collection and processing of information. The result of the planning effort is presented in four documents.

Executive Summary: Summarizes the information contained in the three detailed volumes of the Plan.

Volume I Current Environment: Provides an overview of the current technical information systems that support disease surveillance throughout the State. Volume I describes the systems and assesses their compliance with the NEDSS standards.

Volume II Strategic Plan: Identifies current business and technical challenges facing the State's public health system. This document presents a strategic vision along with a detailed discussion of the goals, objectives, and strategies to migrate the current environment to one that incorporates NEDSS standards and positions public health activities for continued success.

Volume III Implementation Plan: Presents a "road map" for implementing the CalPHIN vision. The Implementation Plan presents prioritized strategies, a plan for early success of CalPHIN, and a foundation for future systems to support disease surveillance and other public health management functions.

Message from DCDC

I am pleased to present the California Public Health Information Network (CalPHIN) Strategic Plan for 2003. This long-term Plan is an integral part of our commitment to protect and improve the health of all Californians. Increasingly, the California Department of Health Services (Department) looks to technology for contributions to solutions for the tough public health challenges facing our State. Information technology, such as the Internet, holds great promise for improving California's public health system as it carries out its mission. In addition, our technology infrastructure and core data are immensely valuable assets that must be well managed to facilitate working relationships with our public health partners. This Strategic Plan presents specific, business-driven goals, objectives, and strategies that we can pursue to leverage technology and data in every way possible to better serve California's public health.

Recent events make this Plan both timely and urgent. These events have dramatically underscored the importance of an effective, comprehensive public health information network that links key information with decision-makers in a timely manner. Business as usual is not acceptable. For this reason, this Strategic Plan provides an essential road map for the CalPHIN initiative in making the right business and technology choices over the next several years. Ultimately, as we proceed in enhancing our public health system and bioterrorism preparedness and response activities, I believe this Plan will help position us to leverage the power of technology more fully to accomplish the CalPHIN vision and support the Department's mission.

The foundational elements of this Strategic Plan include CalPHIN's vision, strategic goals, objectives, and strategies. These elements align with the Department's mission, vision, and key issues, the Division of Communicable Disease Control's major activities, and the Centers for Disease Control and Prevention's Public Health Information Network requirements. Along with key stakeholder input, they serve as the foundation for the CalPHIN initiative's six strategic goals: Leadership, Standards, Collaboration, Enabling Technology, Security/Confidentiality, and Project Success.

Many people contributed to the development of this Plan. We had participation from various DHS organizations, local health departments, and other agencies and departments throughout the State that are a critical part of improving public health. I thank each of you for your contributions of time, effort, and insight. Individually and collectively, you have helped to make the Plan a sound and credible guide for the CalPHIN initiative. By committing to the Plan's goals and strategies, I am confident the CalPHIN effort will effectively utilize collaborative efforts, streamlined processes, and technology to maintain and support the State's public health system for future generations. I look forward to joining with you as we work toward implementing the elements of this Strategic Plan.

Mark Starr, DVM, MPVM, Dipl. ACVPM
Acting Chief

(Date)

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INTRODUCTION

The mission of the California Department of Health Services (DHS) is to protect and improve the health of all Californians. The DHS recognizes that the effective use of information technology, combined with sound business processes, will allow its workforce to accomplish this mission. The California Public Health Information Network (CalPHIN) Strategic Plan presents an ambitious, multi-year agenda to integrate the contributions of people, processes, and technology to meet current and future challenges of public health programs in the State.

The CalPHIN Strategic Plan is a key product of the State's commitment to support the disease surveillance activities of the Centers for Disease Control and Prevention (CDC) and more efficiently manage public health in California. Specifically, the Plan was initiated to comply with the National Electronic Disease Surveillance System (NEDSS) elements that the CDC recommended be incorporated into all of the states' disease surveillance systems.

In the early stages of the planning process, California recognized that improved surveillance activities included more than the technical components identified in the NEDSS initiative. In fact, during the course of developing this Strategic Plan, the CDC expanded the scope of their initiative and began defining a "network" of activities to support public health surveillance. The CDC's expanded initiative is currently known as the Public Health Information Network (PHIN).

This Strategic Plan incorporates more than just the technology components of the original NEDSS vision. It also addresses important aspects of people and processes and, therefore, aligns with the expanded CDC PHIN initiative. Since this strategic planning effort in California aligns with the CDC's vision for PHIN, the name of the Plan was changed from NEDSS to CalPHIN.

The Importance of Quality Information to Support Public Health Surveillance

The cornerstone of public health systems, at all levels, is timely access to high-quality information for protecting and improving public health. More than ever before, information technology (IT) and complex, integrated information systems and databases are needed to fulfill the data and information needs of the public health system.

With the events of September 11, 2001, and other threats of bioterrorist activity, clear lessons have been learned about the critical importance of public health and disease surveillance. While the CDC had already identified the need for core interoperability standards, such as those included in the NEDSS initiative, it subsequently expanded its vision to address broader bioterrorist and non-bioterrorist public health information needs. In order to achieve this broader vision, the CDC moved beyond the NEDSS architectural elements and adopted a philosophy of system integration and resource sharing.

"The best initial defense against public health threats ... (is) a strong information-sharing network that protects privacy while seamlessly connecting local, state and federal governments. Moreover, timely and easy access to information is key to applying effective countermeasures." Subcommittee on Technology and Procurement Policy Oversight – Battling Bioterrorism

Effective public health surveillance can:

1. Act as an early warning system by detecting microbial, environmental, behavioral, occupational, and other health threats.
2. Concentrate resources, focus interventions in areas of greatest need, and facilitate future projections by tracking and monitoring the incidence, patterns, and trends of disease.
3. Help assess public health measures by providing accurate health information to policymakers.

Public Health in California is Supported Through Diverse Organizations

Public health is supported by an array of Federal, State, and local organizations. These partner organizations are further divided into functional units that support clinical, health department, laboratory, disease program, and other operational divisions. The complex responsibilities and interactions between these public health partners demand significant coordination of IT and information sharing methodologies. Cooperation between public health partners is essential to meet the day-to-day operational activities as well as bioterrorism and public health preparedness objectives.

The DHS administers the public health surveillance systems at the State level. The data and information necessary for effective disease surveillance comes from a variety of operational and disease-specific systems. Sixty-one local health departments (LHD) -- comprising the 58 counties and the cities of Berkeley, Long Beach, and Pasadena -- manage the public health system at the local level.

“The foundation of California’s public health system is timely, high quality data and information for protecting and improving public health.”

At the State level, the principal disease surveillance activities are epidemiological – that is, disease surveillance from a demographic or population perspective. The DHS uses data from many systems for their studies, and is the primary source of California data submitted to the CDC.

The data systems that support public health efforts in California were developed in response to specific high priority data needs for individual public health programs. The development and evolution of these program-specific data systems has resulted in silos of information, duplications of effort, and critical information gaps. In addition, these independent systems have made it difficult for public health agencies to link systems and exchange critical data.

Public health professionals, policymakers, State and Local health officers, and other public health partners recognize that timely access to relevant, reliable information would greatly improve California’s ability to address population health concerns. The complexities inherent in the interaction between public health stakeholders requires coordination of business processes, information sharing, and the enabling technology to better meet the day-to-day activities of disease management and control, as well as event detection and bioterrorism preparedness and response activities.

California is Committed to Improving its Public Health Systems

More than ever before, integrated information systems and coordinated approaches are needed to fulfill the data and information needs of California’s public health system. Access to timely,

high-quality information about disease occurrences, abnormal patterns of disease, co-morbidity trends, mortality rates, and other public health events would significantly improve the Department's ability to administer and manage the public health of Californians.

In March 2002, the DHS published a five-year Strategic Plan that addressed the critical issues facing the Department, including those related to public health. The Plan directly supports the overall mission of the Department, which is "... to protect and improve the health of all Californians."

The DHS Strategic Plan identifies such issues as optimizing the capacity of public health throughout the State and improving the health status and outcomes of the population. In order to address these and other issues, the DHS Plan discusses the need to improve data and analysis, sharing of programs and services, communication, and technical assistance. The goals of these improvement efforts are to reduce the burden of preventable diseases; address the challenge of bioterrorism and emerging infectious diseases; improve the availability of population-based health data; and support public health integration, consolidation, and simplification efforts.

To help meet public health goals, the DHS is committed to adopting the NEDSS standards and supporting the PHIN philosophy of sharing information and technology resources among surveillance systems. The Strategic Plan was commissioned to incorporate the NEDSS elements with disease surveillance systems. The Plan also links the objectives of the NEDSS initiative with the goals set forth in the broader DHS Strategic Plan, and demonstrates how NEDSS will help address important issues described in the DHS Strategic Plan.

The Planning Approach and Methodology

The strategic planning process determines where an organization is going in the future, how it is going to get there, and how it will know when it gets there. Essentially, strategic planning represents the link between a vision for the future and the actions necessary to make that vision a reality.



The actual process of developing a strategic plan refocuses the organization's sense of purpose and stimulates future-oriented thinking based on a shared sense of mission. Collaboration among organization members is more effective when everyone is working toward the same goal and shares the same assumptions. The CalPHIN Strategic Plan is the product of a collaborative effort involving public health partners from the local, State, and Federal levels.

The Approach to Create the CalPHIN Strategic Plan

The CalPHIN strategic planning team used a structured approach to collecting and assessing input and information. The approach included a comprehensive review of documentation from public health programs and systems as well as interviews with a broad cross-section of public health stakeholders from across the State. In interviews with more than 60 individuals and groups, the project team gained an understanding of the current business environment as well as future-oriented strategic and business objectives. The interviews also provided insight into key technology-related and other environmental challenges.

The planning team focused on three areas essential to the success of the CalPHIN effort – governance, process, and technology. In the area of governance, the team reviewed the current structure and culture of public health organizations and defined an organizational framework designed to facilitate a higher degree of integration of business activities and technology. The review of public health processes identified business practices that may be shared across the various organizations that administer public health data. The technology review encompassed the software and hardware infrastructure that currently supports the public health system in California.

The following diagram illustrates the major activities that guided the strategic planning process for CalPHIN.

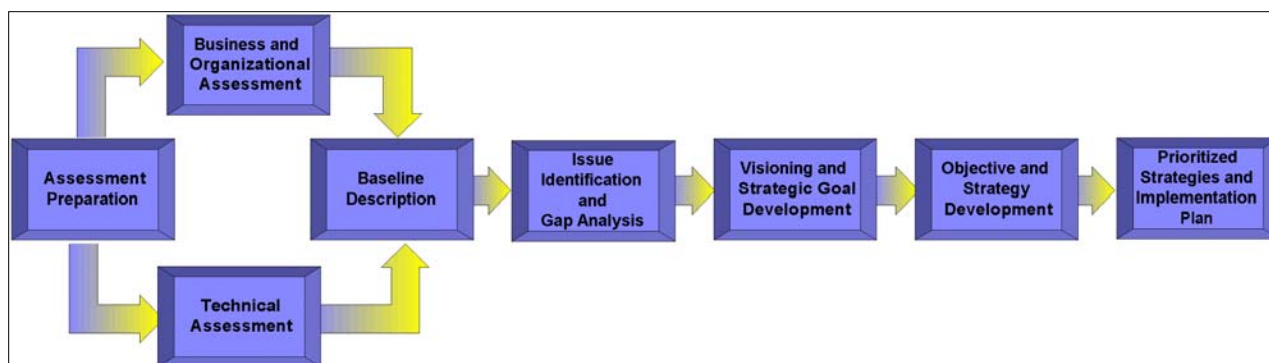


Figure 1. Strategic Planning Activities

The Strategic Plan documentation is presented in three major areas, summarized on the following pages:

Current Environment: Describes the existing systems, process and challenges in the California public health environment

Strategic Plan: Describes the goals, objectives, and strategies to create an environment that will efficiently and effectively meet the future needs of California’s public health systems

Implementation Plan: Presents a roadmap for successful implementation of the CalPHIN Strategic Plan

CURRENT ENVIRONMENT

In order to chart a new future, organizations must know where they stand today. Thus, an internal assessment of current capabilities and infrastructure provides an organization with a baseline against which to plan for the future. Such a baseline allows organizations to determine where change is needed in order to fulfill a mission or achieve a vision.

California's Public Health Operates in a Diverse Environment

California is unique in the way it administers public health programs. In most states, the administration and operation of public health occurs at the state level, with services being delivered or monitored through a network of local field offices of the state agency. In California, by contrast, programs are administered at the state level, but operational and service delivery responsibilities reside at the local (county or city) level. The LHDs have a high degree of autonomy in determining how services are delivered.

The distinct roles and responsibilities of DHS and the LHDs in California, as well as the State's large population and complex demographics, create many challenges for the administration of public health programs. For example, the implementation and use of shared public health systems is quite difficult in such a decentralized environment. As a result, the State's public health programs have developed many similar systems that meet the needs of individual programs or LHDs. Depending on the size and needs of the individual LHDs, some do not use automated systems, while others use systems developed by the State or CDC. Some of the larger LHDs have developed and implemented their own sophisticated systems that integrate operational and surveillance information.

Evaluation of Existing Systems with the NEDSS Architecture

One of the first activities in the strategic planning process included determining if current public health systems incorporate the NEDSS architectural elements, as defined in the NEDSS System Architecture Version 2.0. Figure 2 identifies the systems included in the evaluation. These systems were selected based on their importance to disease surveillance and, in most cases, are a primary source of critical public health information.

System Name	DHS Branch	Developer
Automated Vital Statistics System/Communicable Disease Management System (AVSS/CDMS)	IDB, Immunization Branch, and STD Control Branch	UC Santa Barbara and Atlas Development
California Electronic Laboratory Disease Alert and Reporting System (CELDAR)	Division of Communicable Disease Control, Surveillance and Statistics Section	The SIMI Group
HIV/AIDs Reporting System (HARS) and e-HARS (planned)	Office of AIDS	CDC
Microbial Disease Laboratory System (MDL) II Phase I and MDL II Phase II (pilot)	Microbial Disease Laboratory	DHS, Information Technology Services Division (ITSD) and the SIMI Group
Response and Surveillance System for Childhood Lead Exposures Phase II RASSCLE II (planned)	Childhood Lead Poisoning Prevention Branch (CLPPB)	CLPPB

System Name	DHS Branch	Developer
Refugee Health Electronic Information System (RHEIS)	Refugee Health Section	DHS, ITSD
Tuberculosis Information Management System (TIMS)	TB Control Branch	CDC

Figure 2. DHS Disease Surveillance Systems

A summary of the evaluation is presented in “Figure 3 – NEDSS Element Assessment” on the following page. While a specific system may incorporate one or more of the NEDSS elements, the functionality is not necessarily integrated with other systems having the same capability. The integration of capabilities and sharing of information and resources is addressed in the goals and objectives of the Strategic Plan.

NEDSS Elements	DHS Surveillance Systems								
	AVSS/ CDMS	CELDAR	e-HARS	HARS	MDL II Phase I	MDL II Phase II	RASSCLE II (Planned)	RHEIS	TIMS
a. Conduct and support web browser-based data entry and data management	○	●	●	○	⊙	●	—	●	○
b. Accept, route, and process electronic HL7 messages	○	⊙	⊙	⊙	⊙	⊙	●	○	○
c. Implement an integrated data repository	○	●	⊙	○	○	⊙	●	⊙	○
d. Develop active data translation and exchange functionality	○	●	⊙	⊙	○	⊙	●	○	○
e. Utilize contemporary application programming practices	○	⊙	●	⊙	⊙	⊙	—	●	○
f. Develop data reporting and visualization capability	⊙	⊙	⊙	○	⊙	●	⊙	⊙	⊙
g. Implement a shareable directory of public health personnel	○	⊙	⊙	○	○	⊙	⊙	○	○
h. Implement a security system and appropriate security policies	○	⊙	⊙	⊙	○	⊙	●	⊙	○

Figure 3. NEDSS Element Assessment

Key

- Supports NEDSS system element
- ⊙ Partially supports NEDSS system element
- Does not support NEDSS system element
- Unknown

Fundamental Public Health Challenges Facing California

As California's public health needs have changed over time, the Department's business responsibilities have changed and expanded. Today, state and local public health programs in California face daunting challenges, including emerging infectious diseases, the threat of bioterrorism, high morbidity rates linked to preventable chronic disease and injury, an aging population, and a general lack of understanding about the role of public health services.¹

The current public health environment in California faces fiscal, political, demographic, and technological challenges. The vision and goals of the CalPHIN Strategic Plan are designed to confront these challenges. In particular, problems associated with public health data and communication systems must be resolved if the State is to effectively meet these new and changing challenges.

Over the past few years, public health surveillance by California's State and local public health programs has employed a variety of independently developed data systems. These include systems developed by the CDC, statewide systems with multiple purposes, and locally developed systems for specific needs. These systems were generally designed as program specific data collection and reporting tools and have limitations on their data analysis capacity.

During the strategic planning process, interviews with stakeholders identified a number of significant public health issues and challenges. Figure 4, on the following page, depicts a number of the themes the stakeholders discussed as they identified the issues and challenges to be addressed in the CalPHIN Strategic Plan. These themes represent areas of significant concern and interest to public health stakeholders involved in the CalPHIN initiative.

Current Public Health System Limitations

- Data cannot be easily shared
- Fragmented data and systems
- Data are incomplete
- Absence of common standards limits sharing and coordination
- Costly duplication of effort
- Limited mechanisms to share information and resources
- Collaboration is infrequent
- Under utilization of scarce resources
- Lack of long range coordinated strategic approach

¹ California Department of Health Services, "Leadership for a Healthy California: A Strategic Plan for the California Department of Health Services." March 2002.

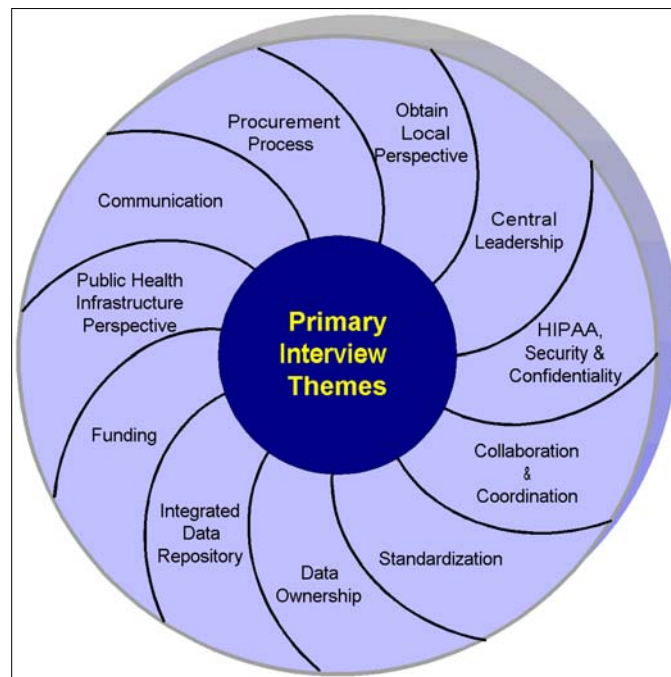


Figure 4. Key Interview Themes

During the interviews, assessments, and research, the Project Team identified many challenges facing California's public health system. The challenges are categorized as either "external" or "internal," depending upon whether they relate to conditions in the larger external context of public health policy, information technology, demographics; or to the internal operation and management of public health agencies and their systems and processes.

The following challenges were documented and provide the basis for development of the CalPHIN Strategic Plan that will support improved public health systems in California.

External Challenges

1. Increasing demand for public health data and information systems
2. Rapid pace of technological change
3. Increasing focus on technological solutions to address core public health business needs
4. Current funding mechanisms and budget constraints create a difficult environment in which to develop and maintain information systems
5. Increasing awareness of the potential for bioterrorist events
6. Increasing awareness of privacy and confidentiality issues
7. Diverse perspectives on the use of – and access to – private information
8. California's changing demographics and large population

Internal Challenges

1. Inconsistent quality and reliability of public health information
2. Project procurement control processes impede technology development efforts
3. Confusion over the scope of NEDSS and PHIN
4. No formal framework to support collaboration among public health entities and coordination of public health information
5. Inconsistent methods of communicating and sharing information technology projects and tools
6. Multiple, overlapping requests for providers to collect and report public health information
7. Unclear and inconsistent standards for data confidentiality, privacy, and security
8. Diverse public health information system environment

CALPHIN STRATEGIC PLAN

The CalPHIN is the State's strategic initiative to develop and implement an integrated and comprehensive public health information network. The initiative itself will have a number of significant benefits, including the following:

- Improve the ability of public health programs to track the health of California's citizens
- Enhance the efficiency of public health professionals
- Improve the ability of public health professionals and agencies to make well-informed decisions
- Enable public health partners to effectively communicate and share information with each other

In general, successful implementation of the CalPHIN initiative will enhance the ability of the State's public health practitioners to share critical public health data and information. The CalPHIN initiative encourages building upon existing capabilities while minimizing additional organizational structures and bureaucracy. The CalPHIN initiative starts with a focus on communicable disease management while maintaining a sense of the broader need to facilitate information-sharing and enable all public health programs and jurisdictions to access critical information.

CalPHIN is More than a One-time Technology Project

CalPHIN is not simply a one-time technology system development project. Rather, CalPHIN must be understood far more broadly, as a dynamic and multifaceted initiative for change in the management and administration of public health programs in California. In short, it is an integral part of the ongoing evolution of public health business practices across the United States. CalPHIN comprises technology, governance, and business process components, as depicted in Figure 5.

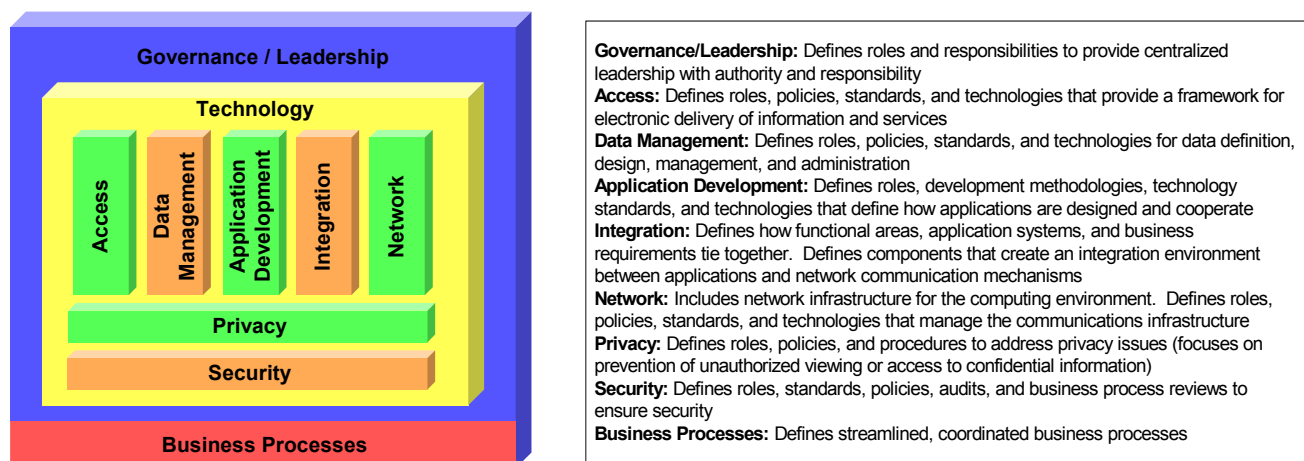


Figure 5. CalPHIN Components

Together, the components of the CalPHIN initiative will promote effective communication, enable the coordination of IT development efforts, support the integration of relevant public health information systems, and facilitate electronic sharing of critical data at key decision points. This will provide public health decision-makers with quality information needed to provide services that protect and improve the health and quality of life of all Californians.

The technological components of the CalPHIN initiative build upon industry data and system standards as well as on the CDC's ongoing NEDSS and PHIN efforts.² Figure 6, below, depicts at a high, conceptual level, the technical aspects of the CalPHIN initiative.

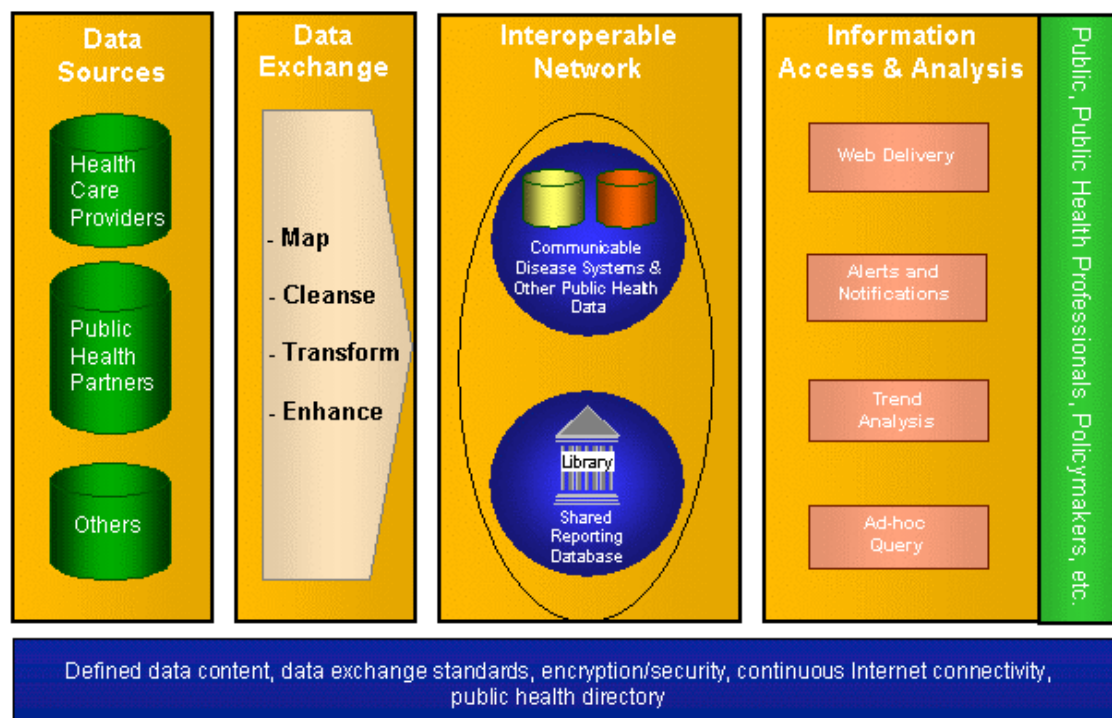


Figure 6. CalPHIN Technical Aspects

The vision for CalPHIN's supporting technology includes a variety of data sources; standard data definitions; clear specifications and processes to exchange data; an interoperable network, including individual and integrated disease information systems; data access and visualization capabilities; and underlying data content, data exchange, and other standards, including privacy and security principles. Building a public health information network does not mean that all information will be made available to everyone. The sharing of confidential information must consider the "need to know," based on the type of information, the legality of making the information available, the programs and departments involved, and the sensitivity of the information itself.

Figure 7, on the following page, illustrates the major benefits of CalPHIN to significantly improve public health decision-making, and improve the efficiency of public health management and administration.

² Refer to <http://www.cdc.gov> for additional information on the CDC's NEDSS, PHIN, and other initiatives.

Impact of CalPHIN -- Improving California's Public Health System

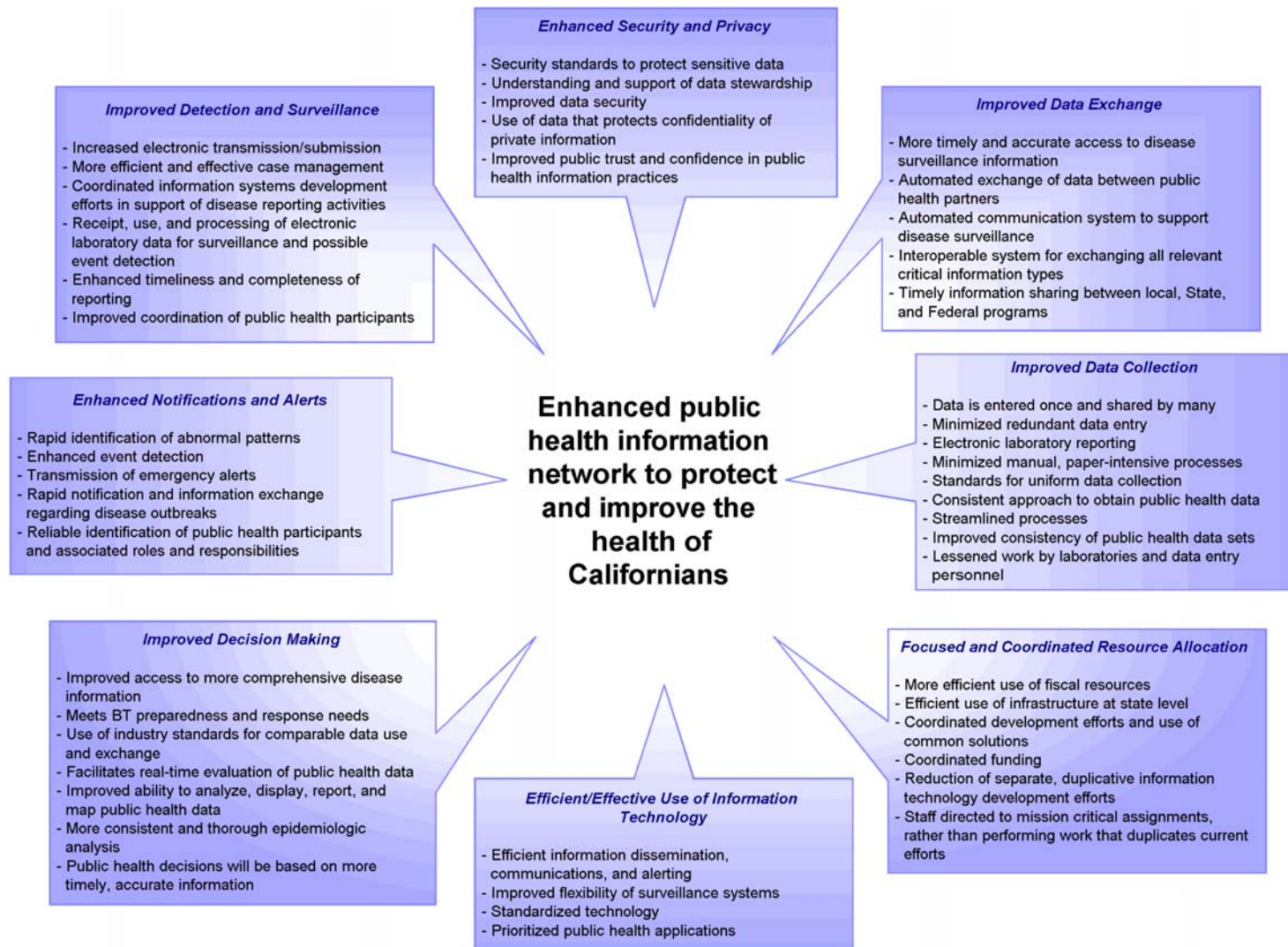


Figure 7. CalPHIN Benefits

Vision for the Future

The CalPHIN Strategic Plan begins with a simple vision statement intended to convey a compelling image of the future. The CalPHIN vision describes how the public health system will manage data and information to meet many of the challenges, demands, and opportunities of the future. This vision statement will guide the CalPHIN initiative's short- and long-term decision-making as well as the overall approach taken to information technology and business management. The result will be an integrated and coordinated public health information network.



CalPHIN Vision

Provide timely and secure access to quality public health data for surveillance, analysis, and decision-making, respecting the confidential nature of personal information.

Strategic Goals, Objectives and Strategies

The CalPHIN Strategic Plan sets forth a business-driven plan designed to meet the needs of diverse stakeholders for cost-effective business and technology solutions that provides complete and accurate information about California's public health. The CalPHIN Strategic Plan comprises six Strategic Goals, each of which includes a set of corresponding objectives and strategies.

CalPHIN Strategic Goals

Leadership:	Establish leadership to oversee and guide the development, evaluation, and implementation of CalPHIN policy and initiatives
Standards:	Develop and implement standards and procedures to support the management of public health information
Collaboration:	Develop and manage public health systems collaboratively with partners and key stakeholders to improve public health data sharing and infrastructure development
Enabling Technology:	Implement reliable, effective, and efficient information technology solutions to support the public health information infrastructure
Security/Confidentiality:	Provide a secure environment for public health information that protects the privacy of Californians
Project Success:	Deliver public health projects on time and within budget while successfully achieving objectives

The CalPHIN Strategic Plan includes a corresponding set of Objectives (specific measurable targets for accomplishment) for each Goal. The table that follows presents the CalPHIN Strategic Goals and supporting Objectives.

CalPHIN Strategic Goals and Objectives	
Strategic Goal 1: Establish leadership to oversee and guide the development, evaluation, and implementation of CalPHIN policy and initiatives	
Objective 1-1: Create an organization with responsibility and accountability to coordinate efforts	
Objective 1-2: Implement organizational and governance structures to provide effective, broad-based, and rapid decision-making	
Objective 1-3: Promote a mindset of data stewardship	
Objective 1-4: Manage cultural changes to implement a public health information network	
Strategic Goal 2: Develop and implement standards and procedures to support the management of public health information	
Objective 2-1: Adopt a comprehensive methodology for setting data, technology and process standards	
Objective 2-2: Adopt comprehensive public health data standards	
Objective 2-3: Adopt technology standards that comply with relevant healthcare industry specifications	
Objective 2-4: Develop and implement optimal process standards	
Strategic Goal 3: Develop and manage public health systems collaboratively with partners and key stakeholders to improve public health data sharing and infrastructure development	
Objective 3-1: Leverage internal and external expertise and resources to meet shared needs	
Objective 3-2: Optimize the use of funding streams to support public health information network efforts	
Objective 3-3: Effectively communicate public health information network efforts	
Objective 3-4: Promote opportunities for cross-project solutions	
Strategic Goal 4: Implement reliable, effective, and efficient information technology solutions to support public health information infrastructure	
Objective 4-1: Implement technology solutions compatible with the CDC's Public Health Information Network initiative	
Objective 4-2: Improve communication and information exchange between internal and external public health stakeholders	
Objective 4-3: Promote a comprehensive perspective in the use of technology resources for public health information systems	
Strategic Goal 5: Provide a secure environment for public health information to protect the privacy of Californians	
Objective 5-1: Ensure compliance with appropriate laws, regulations, policies, and standards	
Objective 5-2: Ensure coordination with HIPAA implementation efforts in California	
Objective 5-3: Promote security and confidentiality principles in support of data stewardship	
Objective 5-4: Provide appropriate access to the appropriate people at the appropriate time for the appropriate use	
Strategic Goal 6: Deliver public health projects on time and within budget while successfully achieving objectives	
Objective 6-1: Understand and communicate internal project approval and procurement processes	
Objective 6-2: Ensure that the selection, implementation, and operation of public health information systems support the overall CalPHIN vision	
Objective 6-3: Adopt best practices for project management, approval, and procurement	

CalPHIN Alignment with DHS Initiatives

The CalPHIN Strategic Goals were developed based on multiple criteria. While the primary input came from the CalPHIN stakeholders, the goals were developed to specifically support the existing strategic direction of the Department and the DCDC. The CalPHIN goals also align with CDC initiative requirements (such as the NEDSS and PHIN specifications).

Specifically, the CalPHIN Strategic Plan aligns with the DHS's overall mission and vision documented in the March 2002 *Strategic Plan for the California Department of Health Services*. The plan supports the following DHS Key Issues (significant challenges facing DHS or its partners that must be overcome to achieve its vision in a five-year period):

1. Optimize State and local public health capacity
2. Improve coverage and access
3. Improve health status and outcomes
4. Foster integrated services delivery
5. Develop and cultivate the DHS employee capability to fulfill the DHS mission
6. Improve business practices

The CalPHIN Strategic Goals also support the DCDC's major activities to respond to current challenges as documented in the December 2000 *Communicable Disease Control in California* report (i.e., DCDC Annual Report). In addition, the CalPHIN strategic direction includes concepts from the CDC PHIN requirements.

Figure 8, on the following page, illustrates the interrelated sets of goals and stakeholder needs that define the strategic direction for attaining the CalPHIN vision.

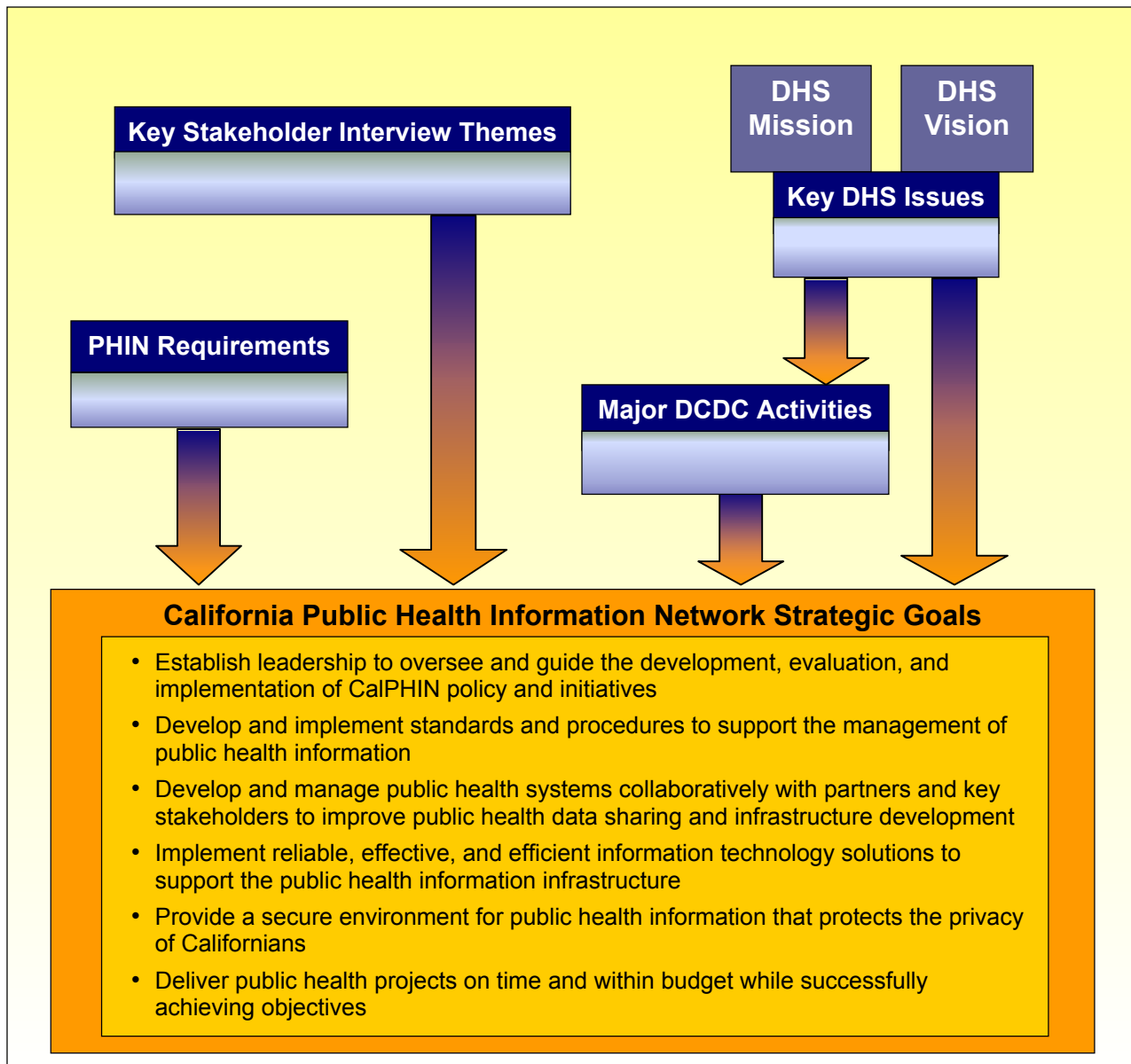


Figure 8. Stakeholder Strategic Direction and the CalPHIN Goals

During the strategic planning process, the Project Team identified specific strategies, or actions to achieve the CalPHIN objectives and goals. When implemented, these strategies will provide the stepping-stones needed to ensure the success of the Strategic Goals and, as a result, the CalPHIN initiative. The Project Team identified in excess of 50 specific strategies to support the CalPHIN Vision.

IMPLEMENTATION PLAN

The Implementation Plan presents the blueprint for CalPHIN activities. The recommendations in the Implementation Plan build on current and previous public health activities, and incorporate additional steps needed to achieve the broader CalPHIN Vision.

The Implementation Plan comprises short-, mid-, and long-term components. The short-term activities should begin and, to the extent possible, be completed within the first year. These activities include establishing the CalPHIN governance structure, educating public health partners about the plan, and implementing “quick wins” to demonstrate the value of the CalPHIN effort. The mid-term (2 - 3 years) and long-term (4 - 5 years) activities will build upon early successes and broaden the foundation of the initiative. Mid- and long-term activities include the more ambitious efforts to integrate the public health network of people, processes, and technology.

The approach used to prioritize the CalPHIN strategies considered such issues as business needs, technical dependencies, collaboration and integration, and associated risks. A qualitative analysis was completed, based on specific guiding principles, to identify those strategies that are best suited for early implementation. In addition, each strategy was evaluated to determine in which time frame (short, mid, or long-term) the strategy should be placed.

The following guiding principles were used to direct the prioritization of CalPHIN strategies:

- Critical to CalPHIN achievement – addresses or achieves fundamental requirements for an integrated and sustainable CalPHIN effort
- Adds efficiency to the overall public health effort – results in cost and/or time savings
- Showcases the benefits of the CalPHIN effort – promotes a positive image of the CalPHIN initiative to public health stakeholders
- Supports activities across multiple public health projects in California – addresses CalPHIN components that include a cross-project focus
- Supports Centers for Disease Control and Prevention (CDC) initiative specifications and corresponding funding requirements – complies with documented CDC functional and technical specifications
- Does not inhibit the progress of other projects – complements, and expands upon existing investments
- Feasible to complete in a manageable work phase – able to be broken down into manageable pieces of work with clear deliverables and time frames

Short-term (one year) Strategies

These activities are intended for completion in the first year. The results of implementing these early activities will be to:

- Educate internal and external stakeholders on the CalPHIN effort
- Establish necessary governance structures

- Facilitate crucial information sharing between partners and stakeholders
- Provide short-term projects to demonstrate the potential for CalPHIN success

To promote trust and confidence in the CalPHIN effort, the initiative needs to achieve early successes. The short-term strategies include quick-wins that be completed without significant additional financial investment, and can have an immediate positive impact on the process. Quick-win projects are relatively low in cost to implement, and demonstrate a commitment by the Department to embrace change and encourage the proactive participation of State and local public health stakeholders.

Anticipated Benefits of Implementing the Short-term Strategies

- Effective use of information technology assets and personnel
- Reduces redundancy of planning and development efforts
- Visible results in the short term
- Enhanced awareness of the CalPHIN effort among public health stakeholders
- Develops common purpose among stakeholders
- Establishes a continuous communication relating to the CalPHIN scope and plan
- Encourages consistent support and participation of CalPHIN efforts
- Ensures common understanding and development of solutions to shared needs
- Increases buy-in and commitment to the CalPHIN initiative

Mid-term (Two - Three Years) Strategies

As with any systems development approach, the CalPHIN development effort must first build a fundamental infrastructure to be used as a common resource for later construction of shared applications/coordinated projects. Mid-term activities are infrastructure-related and include the development of data, technology, and business process standards, reengineered business processes, and enhanced connectivity between people and technology.

The CalPHIN effort includes multiple public health stakeholders and information systems. To enable the diverse stakeholders and systems to work in a uniform and commonly understood manner, the CalPHIN initiative will establish data, technology and process standards early in the overall implementation process. These standards will help ensure consistency of definitions and processes to promote the quality of information exchanged between public health stakeholders.

For the CalPHIN effort to adopt a shared approach to process management for public health, additional information about the current business processes, inputs they require, outputs they produce, and how they relate to each other needs to be defined in detail. As such, business process reengineering and development of a comprehensive business process model are included in the mid-term activities.

Anticipated Benefits of Implementing the Mid-term Strategies

- Provides for consistency in data and information
- Supports compatibility, interoperability, and integration of systems and processes between public health partners
- Effective use of information technology assets and personnel
- Reduces cost of business operations through use of standardized processes

- Reduces the cost and time to develop and deploy new capabilities through use of standard development processes, methods, and tools
- Establishes a collaborative work environment
- Provides for systems that can be maintained through use of standard COTS components, software reuse, and elimination of redundant system components.
- Provides cost effective, efficient software development and acquisition
- Enhances commitment by giving stakeholders a real voice in the process

Long-term (Four - Five years) Strategies

The long-term activities will leverage the knowledge and experience gained from the early successes and the infrastructure developed in the short and mid-term activities. The long-term activities include coordinating staff and financial resources, promoting data stewardship concepts throughout the initiative, developing CalPHIN reporting models and integrated databases, and enabling information exchange and communication between public health stakeholders.

To achieve the CalPHIN vision, a comprehensive network of people, processes, and technology must be created to:

- Support disease surveillance and event detection throughout the State
- Facilitate real-time evaluation of live data feeds, turning data into information for use by public health stakeholders
- Transmit alerts and notices
- Meet bioterrorism and preparedness response needs as well as the day-to-day public health requirements

Several substantive technology projects will be required to deliver the complete CalPHIN vision. While the Implementation Plan will continue to evolve, it initially focuses on elements that enable information exchange and communication between key stakeholders. The technology projects are designed to close critical information sharing gaps identified by the public health stakeholders. The technology projects supporting this task will need to be refined as the initiative matures.

Anticipated Benefits of Implementing the Long-term Strategies

- Effective management of complex CalPHIN projects
- Effective use of information technology assets and personnel
- Supports compatibility, interoperability, and integration
- Facilitates resource sharing
- Maximizes investment benefits throughout the organization
- Achieves interoperability and cross-functional integration
- Facilitates the elimination of redundant databases and interfaces
- Continues a collaborative work environment
- Improves productivity and customer satisfaction through reengineered and continuously improving business processes
- Produces consistent, high quality solutions by forging effective partnerships among managers, developers and users
- Facilitates more rapid response to stakeholder needs
- Encourages cooperation at all levels
- Ensures common understanding and development of solutions to meet shared needs
- Ensures optimal system development over time

- Leverages new information technology investments
- Increases manageability

Critical Success Factors and Risks

The Strategic Plan lays out the CalPHIN initiative's vision, strategic goals, and objectives, and identifies a series of strategies designed to move toward an integrated network of people, processes, and technology. As with any strategic plan, the goals and supporting strategies entail substantial change for an organization.

In order to manage the changes and minimize the negative impact to the stakeholders, the following factors should be considered as essential to the success of CalPHIN.

- Visible and consistent executive and management support
- Development of a strong, central leadership team
- Program and Local Health Department participation and cooperation
- Coordination with other initiatives
- Early, and continuous involvement of stakeholders
- Continuous improvement activities
- Establish an environment that is conducive to change
- Obtain necessary resources and funding
- Drive the CalPHIN initiative with teamwork, collaboration, and communication
- Focus on high priorities and follow through with delivery
- Keep technology in perspective
- Eliminate data ownership mentality
- Overcome the complexity and diversity in California's public health system

In addition, the following risks must be managed during the implementation of CalPHIN activities. If these are not addressed, they may interfere with the implementation of, and impede the ability to achieve, the proposed Goals, Objectives, and Strategies.

- Maintaining a culture of data ownership, as opposed to data stewardship
- Perception that confidentiality of public health information is threatened
- Complex jurisdictional landscape may prevent collecting and integrating information
- Lengthy procurement processes to plan, develop, and implement appropriate solutions
- Budget constraints may limit ability to implement proposed initiatives
- Organizational resistance to change

CONCLUSION

The public health infrastructure is the foundation that supports the planning, delivery, and evaluation of public health activities. Public health requires a proper infrastructure to prepare for an appropriate response to public health threats and emergencies (e.g., bioterrorism attacks). Public health surveillance systems are key to this infrastructure and provide critical information to monitor and, if necessary, change public health policy and activities. With the increased awareness of a possible bioterrorist event and emerging disease management techniques, there has been a renewed emphasis to focus on the timeliness and accuracy of public health surveillance programs. The information required to provide this support may reside in multiple sources and is not readily available to support critical needs of public health.

The publication of the CalPHIN Strategic Plan represents the beginning of a new spirit of cooperation within the California public health system. This cooperation is the foundation of a new way of doing business that will support the current needs of disease surveillance, detection and notification, and the goals of public health and DHS. The Strategic Plan was developed with input from a variety of stakeholders and the Implementation Plan provides a roadmap to achieve the benefits identified in the CalPHIN Strategic Plan.

The continued proliferation of independent, stand-alone information systems reduces the ability of the State to take an integrated view of public health. Continued segmentation of the public health system's information technology systems along programmatic boundaries creates artificial systemic gaps in what should be a seamless flow of data and information to support California's public health activities. The lack of coordination on future systems development efforts will result in even more independent silos of public health information in California.

While current public health systems allow programs to meet their specific operational responsibilities, there is a desire among these stakeholders to improve the integration of cross-functional systems and activities to take advantage of the benefits of shared information and technical resources. The NEDSS standards and PHIN vision provide the opportunity for California's public health systems to create such an environment

The spirit of cooperation among the public health stakeholders, which has been demonstrated throughout the development of the CalPHIN Strategic and Implementation Plans, will continue to grow in the future. When planning for future program, system, and IT efforts, stakeholders can no longer operate independently and must raise their commitment to a system-wide integration approach. Scarce resources must be leveraged across programs to support the broadest needs of public health in California.

The recommendations set forth in the Strategic and Implementation Plans embrace best practices and include steps to bring the State's public health systems to the next level of IT maturity. These plans usher in a new way of doing business, a new culture of effective system-wide public health strategic planning and implementation of technology and reengineered processes. The end result will be a greatly enhanced ability to meet the challenges and opportunities of protecting and improving the health of Californians.